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THE REACTION OF THE CEREBRO-SPINAL FLUID TO THE ACETIC ANHYDRIDE TEST

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DURING the past few months one has endeavoured to compare the results obtained by using the acetic anhydride test on cerebro-spinal fluids with those obtained by the colloidal gold and globulin methods, in order to form a tentative opinion as to the reliability of this very simple test.

Its advantage is the ease with which it can be carried out, and, moreover, it gives a definite result very quickly, the reading being obtained within a very few moments. The technique is quite straightforward: to 1 c.c. of cerebro-spinal fluid in a sterile test tube 0.3 c.c. of acetic anhydride is added, and the tube shaken thoroughly; 0.8 c.c. of concentrated sulphuric acid is added slowly, drop by drop.

If the cerebro-spinal fluid is from a case of general paralysis of the insane a deep purple colour soon appears, but if the case is negative a brownish-red reaction is found. To take the reading correctly, a white background is necessary.

There is said to be an error of some 8 per cent. with this test, this being accounted for by the number of neurosyphilitics giving a positive result, although not true general paralytics. For this reason it would appear inadvisable to lay complete reliance on the acetic anhydride test without considerable confirmatory evidence in other directions. All the results which we are about to quote have been confirmed by Lange's colloidal gold method, the globulin reaction (ammon. sulphate and also Pandy), the sigma reaction and cell count. In any still doubtful case the permanganate test is used.

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Table I. shows a marked agreement in the results obtained from the three tests quoted, and even in the last eight cases, where the Lange reading is somewhat high in the luetic field, one has not found the positive results with the acetic anhydride test such as one might be led to expect to occur in accordance with the alleged error of 8 per cent.

Turning now to paretic fluids, it is evident that Lange's colloidal gold and the acetic anhydride tests are, in every case save one, in agreement: not so with the globulin reaction, however, which is negative in quite a proportion of cases (Table II.).

Less clear-cut, but perhaps more interesting, are the results obtained from the cerebro-spinal fluids of general paralytics after malarial treatment.

Where the colloidal gold reading shows a considerable alteration from the original and typical paretic curve, the acetic anhydride reaction is negative in about half the cases. The globulin, however, seems to alter more readily even in those cases where the Lange's reaction is still markedly positive. In no case has the acetic anhydride reaction been negative when the globulin has been positive.

It would seem, therefore, that the acetic anhydride test is easy, reliable, and, on the whole, more sensitive than the globulin reaction; after malarial therapy it may still confirm the original diagnosis in absence of a truly positive paretic curve to the colloidal gold.

We wish to thank the Medical Superintendent, Dr. F. M. Rodgers, for his permission to use results obtained in the hospital laboratory.

TABLE I.

The Results of Tests on Non-paretic Cerebro-spinal Fluids.

Lange's colloidal gold.		Globulin.		Acetic anhydride.
0001111000	..	Negative.	..	Negative.
0001121000	..	Negative.	..	Negative.
0001100000	..	Negative.	..	Negative.
0001122110	..	Negative.	..	Negative.
0011110000	..	Negative.	..	Negative.
0011100000	..	Negative.	..	Negative.
0012221000	..	Negative.	..	Negative.
0011110000	..	Negative.	..	Negative.
0122211000	..	Negative.	..	Negative.
0001122100	..	Negative.	..	Negative.
0001110000	..	Negative.	..	Negative.

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Lange's colloidal gold.		Globulin.		Acetic anhydride.
0011211000	..	Negative.	..	Negative.
0001122100	..	Negative.	..	Negative.
0000000000	..	Negative.	..	Negative.
0002110000	..	Negative.	..	Negative.
0111210000	..	Negative.	..	Negative.
0000220000	..	Negative.	..	Negative.
0022200000	..	Negative.	..	Negative.
0012220000	..	Negative.	..	Negative.
0022200000	..	Negative.	..	Negative.
0012210000	..	Negative.	..	Negative.
0002220000	..	Negative.	..	Negative.
0011000000	..	Negative.	..	Negative.
0001100000	..	Negative.	..	Negative.
0001200000	..	Negative.	..	Negative.
0012210000	..	Negative.	..	Negative.
0011220000	..	Negative.	..	Negative.
0012210000	..	Negative.	..	Negative.
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0123220000	..	Negative.	..	Negative.
0134443320	..	Negative.	..	Negative.
0023332000	..	Negative.	..	Negative.
0122332000	..	Negative.	..	Negative.
0123321000	..	Negative.	..	Negative.
0123222110	..	Negative.	..	Negative.
0023332000	..	Negative.	..	Negative.
0122331100	..	Negative.	..	Negative.
0043321000	..	Negative.	..	Negative.
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0012221000	..	Positive.	..	Negative.
012221000	..	Positive.	..	Negative.

These cases had tests performed on the cerebro-spinal fluid, as in many instances a history of specific infection of old standing was obtained. Where such readings have been found, further and later tests are made until it seems definitely established that the patient is not a general paralytic.

Such individuals, by their clinical symptoms, suggest either a post-encephalitic condition or an early general paralysis, whilst others evince signs of cerebro-spinal syphilis or disseminated sclerosis.

TABLE II.

The Results of Tests on Paretic Cerebro-spinal Fluids.

Lange's colloidal gold.		Globulin.		Acetic anhydride.
0135555320	..	Positive.	..	Positive.
5555554210	..	Positive.	..	Positive.
5555555543	..	Positive.	..	Positive.
5555555442	..	Positive.	..	Positive.
4555555432	..	Positive.	..	Positive.
5555555543	..	Positive.	..	Positive.
4555555542	..	Positive.	..	Positive.
5555555553	..	Positive.	..	Positive.
5555555542	..	Positive.	..	Positive.
4555555432	..	Positive.	..	Positive.

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Lange's colloidal gold.		Globulin.		Acetic anhydride.
445555543I	..	Positive.	..	Positive.
555555543I	..	Positive.	..	Positive.
555555543I	..	Positive.	..	Positive.
5555554332	..	Positive.	..	Positive.
0355544200	..	Positive.	..	Positive.
235555554I	..	Positive.	..	Positive.
4445555430	..	Positive.	..	Positive.
5555432210	..	Positive.	..	Positive.
4555433100	..	Positive.	..	Positive.
4555433210	..	Positive.	..	Positive.
5555544320	..	Positive.	..	Positive.
4444543200	..	Positive.	..	Positive.
4444332200	..	Positive.	..	Positive.
5555543200	..	Positive.	..	Positive.
5555555432	..	Positive.	..	Positive.
4555554320	..	Positive.	..	Positive.
2345543200	..	Positive.	..	Positive.
5555555532	..	Positive.	..	Positive.
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5555555432	..	Negative.	..	Positive.
5555543200	..	Negative.	..	Positive.
5555555432	..	Negative.	..	Positive.
4555543220	..	Negative.	..	Positive.
1355542110	..	Negative.	..	Positive.
344555551I	..	Negative.	..	Positive.
155555554I	..	Negative.	..	Positive.
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5555543300	..	Negative.	..	Negative.

TABLE III.
*The Results of Tests on Cerebro-spinal Fluids after Malarial Therapy
of General Paralysis.*

Lange's colloidal gold.		Globulin.		Acetic anhydride.
5555555552	..	Positive.	..	Positive.
5555555555	..	Positive.	..	Positive.
023344321	..	Positive.	..	Positive.
5555555443	..	Positive.	..	Positive.
0035555000	..	Positive.	..	Positive.
455555331I	..	Positive.	..	Positive.
5555432210	..	Positive.	..	Positive.
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1334552100	..	Negative.	..	Positive.
4555531000	..	Negative.	..	Positive.
5555553320	..	Negative.	..	Positive.
4555543200	..	Negative.	..	Positive.
5555554320	..	Negative.	..	Positive.
5555543210	..	Negative.	..	Positive.
3455543220	..	Negative.	..	Positive.
5555555543	..	Negative.	..	Positive.
5555553320	..	Negative.	..	Positive.
5555554320	..	Negative.	..	Positive.

REACTION OF THE CEREBRO-SPINAL FLUID

Lange's colloidal gold.		Globulin.		Acetic anhydride.
0003320000	..	Negative.	..	Positive.
0111332000	..	Negative.	..	Positive.
0111222200	..	Negative.	..	Positive.
0034321000	..	Negative.	..	Positive.
0024443200	..	Negative.	..	Positive.
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1234322100	..	Negative.	..	Negative.
2234553200	..	Negative.	..	Negative.
0001111000	..	Negative.	..	Negative.
0112332100	..	Negative.	..	Negative.
0112221000	..	Negative.	..	Negative.
1233321000	..	Negative.	..	Negative.
3455543100	..	Negative.	..	Negative.
0032110000	..	Negative.	..	Negative.

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